

This Listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-6. (Canceled)

7. (Currently Amended) A method for displaying geographic roadway data, geographic track data, and geographic position data for a train, said method comprising:

employing a geographic information system database;

entering static roadway data in said geographic information system database;

entering static track data in said geographic information system database;

controlling or monitoring a plurality of track sections with a plurality of track circuits;

determining a first track section of said track sections occupied by said train;

determining at least one second track section of said track sections, which has been cleared to be occupied by said train at a future time;

determining geographic starting and ending positions of said first track section;

determining geographic starting and ending positions of said at least one second track section;

displaying geographic information regarding said static roadway data and said static track data from said geographic information system database;

determining first geographic information regarding said first track section occupied by said train from said geographic starting and ending positions of said first track section and from said geographic information system database;[-and]

determining second geographic information regarding said at least one second track section from said geographic starting and ending positions of said at least one second track section and from said geographic information system database; and

displaying said first and second geographic information regarding said first track section occupied by said train and said at least one second track section with said geographic information regarding said static roadway data and said static track data.

8. (Currently Amended) The method of Claim 7 further comprising:

storing a starting longitude, a starting latitude, an ending longitude and an ending latitude for each of said track sections in another database; ~~and~~

determining said first geographic information regarding said first track section occupied by said train from said starting longitude, said starting latitude, said ending longitude and said ending latitude of said first track section occupied by said train and from said geographic information system database; and

determining said second geographic information regarding said at least one second track section from said starting longitude, said starting latitude, said ending longitude and said ending latitude of each of said at least one second track section from said geographic information system database.

9. (Currently Amended) The method of Claim 8 further comprising:

determining a plurality of third nodes between a first node defined by said starting longitude and said starting latitude of said first track section occupied by said train and a second node defined by said ending longitude and said ending latitude of said first track section occupied by said train from said geographic information system database; ~~and~~

displaying a plurality of first lines between said third nodes as said first geographic information regarding said first track section occupied by said train;

determining a plurality of sixth nodes between a fourth node defined by said starting longitude and said starting latitude of a first one of said at least one second track section and a fifth node defined by said ending longitude and said ending latitude of a last one of said at least one second track section from said geographic information system database; and

displaying a plurality of second lines between said sixth nodes as said second geographic information regarding said at least one second track section.

10. (Currently Amended) The method of Claim 7 further comprising:

entering said determined first geographic information regarding said first track section occupied by said train in said geographic information system database before said displaying said first geographic information regarding said first track section occupied by said train.

11. (Original) The method of Claim 7 further comprising:

determining another track section occupied by said train;

determining geographic starting and ending positions of said another track section;

determining geographic information regarding said another track section occupied by said train from said geographic starting and ending positions of said another track section and from said geographic information system database; and

displaying said geographic information regarding said another track section occupied by said train.

12. (Previously Presented) The method of Claim 11 further comprising:
responding to an event defined by said determining another track section occupied by said train; and

continuously displaying in about real-time said geographic information regarding said another track section occupied by said train.

13. (Currently Amended) The method of Claim 7 further comprising:
clearing another track section of said track sections to be occupied by said train;

determining as a cleared track section said another track section;
determining geographic starting and ending positions of said cleared track section;

determining geographic information regarding said cleared track section from said geographic starting and ending positions of said cleared track section and from said geographic information system database; and

displaying said geographic information regarding said cleared track section with said displayed first geographic information regarding said first track section occupied by said train.

14. (Currently Amended) The method of Claim 13 further comprising:
displaying said first geographic information regarding said first track section occupied by said train in a first color; and

displaying said geographic information regarding said cleared track section in a second different color.

15. (Currently Amended) The method of Claim 13 further comprising:
planning at least one third ~~a further~~ track section of said track sections to be occupied by said train;

determining as at least one [a] planned track section said at least one third ~~further~~ track section of said track sections to be occupied by said train;

determining geographic starting and ending positions of said at least one planned track section;

determining geographic information regarding said at least one planned track section from said geographic starting and ending positions of said at least one planned track section and from said geographic information system database; and

displaying said geographic information regarding said at least one planned track section with said displayed first geographic information regarding said first track section occupied by said train and with said displayed geographic information regarding said cleared track section.

16. (Currently Amended) The method of Claim 15 further comprising:

displaying said first geographic information regarding said first track section occupied by said train in a first color;

displaying said geographic information regarding said cleared track section in a second different color; and

displaying said geographic information regarding said planned track section in a third different color.

17. (Original) The method of Claim 7 further comprising:

including with said geographic information system database a roadway layer and a railroad layer;

entering said static roadway data in said roadway layer of said geographic information system database; and

entering said static track data in said railroad layer of said geographic information system database.

18. (Currently Amended) The method of Claim 17 further comprising:

including with said geographic information system database a train position layer; and

dynamically determining said first geographic information regarding said first track section occupied by said train; and

entering said dynamically determined first geographic information in said train position layer of said geographic information system database.

19. (Original) The method of Claim 18 further comprising:

including with said geographic information system database at least one of a label layer and a landmark layer.

20. (Currently Amended) The method of Claim 18 further comprising:

determining when said train moves within a geographic area corresponding to said train position layer of said geographic information system database and

responsively entering said dynamically determined first geographic information in said train position layer of said geographic information system database.

21. (Original) The method of Claim 7 further comprising:

employing said static roadway data for a predetermined municipality.

22. (Currently Amended) The method of Claim 7 further comprising:

determining said first track section occupied by said train from a computer aided dispatching system.

23. (Currently Amended) The method of Claim 7 further comprising:

determining said first track section occupied by said train at a present time.

24. (Canceled)

25. (Currently Amended) The method of Claim 7 [24] further comprising

determining as a planned track section a further track section planned to be occupied by said train at another future time; and

displaying geographic information regarding said planned track section with said first and second geographic information regarding said first ~~cleared~~ track section ~~and said geographic information regarding said track section~~ occupied by said train and said at least one second track section.

26. (Currently Amended) The method of Claim 7 further comprising:

overlaying said displayed geographic information regarding said static roadway data and said static track data from said geographic information system database with said displayed first and second geographic information regarding said first track section occupied by said train and said at least one second track section.

27. (Original) The method of Claim 7 further comprising:

employing with said displayed geographic information regarding said static roadway data at least one of a map of roadways, and a plurality of representations of location identifiers.

28. (Original) The method of Claim 27 further comprising:

employing a plurality of names as said representations of location identifiers.

29. (Currently Amended) A geographic information system for displaying

geographic roadway data, geographic track data, and geographic position data for a train, said geographic information system comprising:

a geographic information system database including static roadway data and static track data;

means for determining a first track section occupied by said train from a plurality of track sections, which are controlled or monitored with a plurality of track circuits;

means for determining at least one second track section of said track sections, which has been cleared to be occupied by said train at a future time;

means for determining geographic starting and ending positions of said first track section;

means for determining geographic starting and ending positions of said at least one second track section;

means for displaying geographic information regarding said static roadway data and said static track data from said geographic information system database;

means for determining first geographic information regarding said first track section occupied by said train from said geographic starting and ending positions of said first track section and from said geographic information system database;[~~and~~]

means for determining second geographic information regarding said at least one second track section from said geographic starting and ending positions of said at least one second track section and from said geographic information system database; and

means for displaying said first and second geographic information regarding said first track section occupied by said train and said at least one second track section with said geographic information regarding said static roadway data and said static track data.

30. (Currently Amended) The system of Claim 29 wherein said means for determining a first track section occupied by said train is a computer aided dispatching system; and wherein said means for determining geographic starting and ending positions of said first track section includes a track infrastructure database.

31. (Currently Amended) The system of Claim 30 wherein said means for determining geographic starting and ending positions of said first track section further includes a translation routine; wherein said track infrastructure database includes a plurality of records, with one of said records being associated with a corresponding one of said track sections, and further includes with each of said records a record identifier, an identifier of said corresponding one of said track sections, a starting latitude, a starting longitude, an ending latitude and an ending longitude; wherein said computer aided dispatching system

sends a message including an identifier of said first track section to said translation routine; and wherein said translation routine responsively employs said identifier as a key to find one of said records in said track infrastructure database.

32. (Currently Amended) The system of Claim 31 wherein the static track data of said geographic information system database includes a plurality of representations of railroad tracks; wherein said means for displaying geographic information regarding said static roadway data and said static track data includes an image generator routine to display said static roadway data and said representations of railroad tracks; wherein said means for determining first geographic information regarding said first track section occupied by said train includes a train position routine, which receives from said translation routine said starting latitude, said starting longitude, said ending latitude and said ending longitude and responsively determines at least one of said representations of railroad tracks from said static track data of said geographic information system database; and wherein said means for displaying said first and second geographic information regarding said first track section occupied by said train and said at least one second track section displays a feature associated with said at least one of said representations of railroad tracks.

33. (Original) The system of Claim 32 wherein said geographic information system database includes a plurality of geographic information system maps associated with a plurality of corresponding geographic areas; and wherein said train position routine employs said starting latitude, said starting longitude, said ending latitude and said ending longitude to select one of said geographic information system maps on which to display said feature associated with said at least one of said representations of railroad tracks.

34. (Currently Amended) The system of Claim 33 wherein said means for displaying said first and second geographic information regarding said first track section occupied by said train and said at least one second track section includes a global communication network, a web browser and a display applet; and wherein said train position routine stores said feature in said geographic information system database and outputs a streaming vector corresponding to said feature over said global communication network to said display applet.

35. (Original) The system of Claim 34 wherein said display applet receives said streaming vector and displays a representation of said feature on a geographic information system map display.

36. (Original) The system of Claim 34 wherein said translation routine and said train position routine are part of a server; and wherein said web browser and said display

applet are part of a client, which is interconnected with said server by said global communication network.

37-41. (Canceled)

42. (Currently Amended) The method of Claim 7 further comprising:

~~employing said track section as a first track section;~~

employing said train as a first train;

determining said first track section occupied by said first train and a third ~~second~~ track section of said track sections occupied by a second train from a computer aided dispatching system;

determining geographic starting and ending positions of said ~~first and~~ third ~~second~~ track section sections;

~~determining geographic information regarding said first track section occupied by said first train from said geographic starting and ending positions of said first track section and from said geographic information system database;~~

determining geographic information regarding said third ~~second~~ track section occupied by said second train from said geographic starting and ending positions of said third ~~second~~ track section and from said geographic information system database; and

displaying said geographic information regarding said first and third ~~second~~ track sections occupied by said first and second trains, respectively, with said geographic information regarding said static roadway data and said static track data.